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INFLAMED AND SENSITIVE TEETH.

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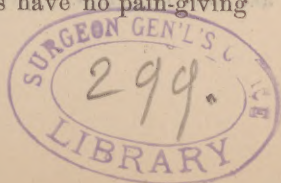
INFLAMED AND SENSITIVE TEETH.

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"First principles are necessarily assumptions; they cannot prove themselves," says Froude. Individual instances may be proven by individual observation, investigation, or experience; but the knowledge and application of a principle will solve the method of a thousand cases that would otherwise demand a thousand separate investigations.

My object in offering this essay is to try to present to you the principle that underlies the condition of inflammation applicable to a class of teeth not ulcerated; not aching from exposure of the dental pulp; not even decayed oftentimes, but still painful and annoying, and offering no apparent excuse for their condition,—being teeth classed as aching from obscure causes; as well as the condition applicable to a large number of ulcerated teeth.

Pain is always caused by pressure. This I assume to be a law or first principle applicable to living human bodies. I hardly feel it my duty to demonstrate this fact, but the observation of many years increases my faith in the correctness of this assumption. In this connection pressure is not only referred to as that occasioned by blows or falls and their immediate results, but pressure due also to the reaction from injuries, shown in the enlargement of the part or parts injured, which is due to the increased flow of the blood, lymph, and nervous fluids towards the contused spot. Strictly speaking, there is no such thing as an inflamed or sensitive tooth. Only after years of professional life do I realize this fact. It has taken me so long to thoroughly disassociate the idea of pain in a tooth from what is ordinarily called the tooth—that is, from the actual tooth-substance, the bone, *i.e.*, dentine and enamel—that I may say it is only just lately that I have fairly realized it. Very few of us realize, when we strike the edge of our instruments across the flinty materials that constitute the exterior tooth, causing a spasm of pain to our patients, that these substances have no pain-giving



power in them; for, when the members of our profession truly realize it, they will rise to a higher plane of practice, and have clear and unmistakable results, where now they grope in the dark.

Allowing these premises to be as stated, it is reasonable to ask the question, Whence comes pain, and where is its source in a tooth? The answer is, always and every time, from its fleshy constituents, and never from any other source. Try, then, to thoroughly realize that the lime and other mineral products of which the enamel and dentine consist have not a single element of pain-producing power in them; and then let us in our minds divide a tooth into two parts, and we have then, as is the fact, one part, the bone part, non-sensitive; the other part, the flesh part, sensitive. Consequently, all the tooth pain must be in the part which is truly flesh and sensitive. In this condition of mind we are ready to approach the subject of inflamed teeth, and will be able to comprehend at once that two conditions exist that may cause sensitiveness—in other words, inflammation—in the fleshy constituents that lie in and around a tooth; these being the only tissues that can be sensitive; the one condition being pathological, connected with the flesh part, and the other mechanical, connected with the mineral part; both occasioned by pressure, but from widely different sources.

I have been for years studying to realize practical results from this theory, keeping always first principles in sight, and getting a clearer vision as I proceeded. Simple as this theory appears, there is in it a wide field of study. It will be found to be a "high science," for it involves within itself conditions produced by mal-occlusion; results of accidents occasioned by falls, blows, and injuries; inflammation of the periosteum; congestion and ulceration of the same; inflammation of the pulp; strangulation of the pulp, and congestion of the same; dental abscess, etc.

Having disassociated the idea of pain from the bony tissues of the teeth, we can more easily associate the teeth with the mineral kingdom, and can look on a tooth as a block of marble, a piece of stone, or anything truly hard that is placed in the jaw to crush food with.

We have thus two different ways of looking at a tooth, corresponding to the two different substances of which it is made,—the one way as a sensitive and often a very highly sensitive organ, and the other way as an entirely non-sensitive one. Having made these distinctions clear to our minds,—a thing harder to do than at first thought it would seem to be,—we will proceed to consider the causes of sensitive teeth; or, in other words, the over-sensitiveness in the fleshy constituents of the tooth organism and its immediate surroundings. Two causes here exist for sensitiveness,—the

one physiological, or pathological, if you prefer the latter word, and the other mechanical, or produced by mechanical means or causes; usually induced by the mineral irritant, the hard, unyielding bone of the tooth; non-susceptible to pain in itself, but productive of any amount of pain as a mechanical irritant when in the way of nature's plans or standing between cause and effect. So closely are these results allied to physiological causes that we may write it down as an axiom that *all pain in a tooth that does not come from diseased conditions is produced by mechanical irritation*. By diseased conditions, in this connection, I mean inflamed and dead tissues, and count congested pulps as dead tissues, as they are dead to all their uses, and can only pass into a stage of decay.

The so-called periosteum, which lies beneath and around the ends of the roots of the teeth, is a sort of cartilage or cushion, being between two bones, as cartilages are; and I find that the firmness of the tooth is dependent on the thickness or the thinness of this cushion, and more motion will be found if the periosteum is thick. It is elastic, and has the power of being compressed; but, in order to increase its compressive as well as its expansive power, nature has penetrated it with numerous blood-vessels, that enlarge it or contract it by the ebb and flow of the blood currents. Inflammation gives notice of disturbed normal conditions.

The question is often asked and labored attempts are made to answer it, What is inflammation? My answer would be that *inflammation is an attempt of nature to cure an injury*. There is always an injury done before inflammation sets in. Then nature enlarges the vessels that carry pabulum and remove retrograded tissue. Inflammation cries ever, "More room, more room!" The larger the injury, the more room she wants and needs. There is the dead wood to gather and burn up, and she cries out, "Inflammatio—I burn." The dead matter that is not forced to the surface or carried off to other portions of the system is burned up in what is truly inflammation. In the meantime the pabulum-carriers and the tissue-builders, rushing along to do their work like a crowd in a thoroughfare, cause pressure on the nervous tissues, and they give notice to the storehouse of force, the brain, of the extent of the disturbance or injury.

Inflammation is always in the fleshy parts, to which dental pulps and periosteum belong. We therefore direct our thoughts to these parts, seeking in them the cause of their irritation and pain. So much has our seeking been in this direction for the cause of inflamed teeth, that the fully as important, and, under the circumstances, the much more important, cause, mechanical irritation, has been largely overlooked, and therefore we should now give our thoughts to this branch of our subject; for I would like to convince you, as I am

convinced, that *all the inflamed and ulcerated teeth not having their cause in the deterioration of their pulps, and the poisoning of the periosteum from contact through the circulation with their retrograded tissue, come from this cause.* This seems a broad statement, but I do not make it for effect. Neither do I make it without due consideration. Indeed, I have been hoping that some other would have made it before me, and that I might confirm his judgment with my own. Not as an experiment, but after repeated trials and repeated successes, I offer this conclusion as one of the results of my years of professional study and practice, and trust the future experience of the profession will thoroughly confirm and justify it.

To cure the primary condition of inflammation from mechanical causes is an easy matter when understood. It is simply to get room and rest for the changed condition of the periosteum. It is to observe the articulation and correct it, to distribute the strike or occlusion evenly over the teeth, and particularly to diminish the strike between the inflamed tooth and its antagonist until it becomes neutral or does not strike at all; doing it rightly, sometimes not trimming off anything from the inflamed tooth, but all from its antagonist in the opposite jaw; sometimes taking all from it, sometimes dividing the loss of inert substance between the two, and very rarely filing or grinding enough to expose any sensitive surface. It does not need that I should explain the mechanical means at hand to shorten teeth.

I know my critical friends on my right hand and my left will say that a tooth is *not* an inert substance. But in affirming that it is, I take into consideration the thorough knowledge of my audience on dental subjects, and trust in return that I shall have credit for so much of the same as not to be taken up on this technical point, as I have more regard for results than for theories.

To further explain, I will suppose a case. A patient comes in with an inflamed tooth, suffering from a dull, steady pain. It will probably be in the morning. The tooth, on examination, appears to be healthy in every respect, only there is pain enough to disturb the patient, and he thinks that it threatens more pain. The cause seems ambiguous, and the question comes, What shall we do? "Paint the gum with iodine," says one. "Put on a mustard leaf," says another. "Drill into it," says a third. "It is a pulp stone," says a fourth. "When a patient comes in with an aching tooth," said an old dentist to me, when I was younger than now, "I do *something*. The patient feels better satisfied if you will do something for him." And so the tooth gets better or worse soon, and if nature relieves it by removing the cause for the time being, the iodine, or the mustard, or what not, gets the credit of the cure.

Should a similar case come into my office, while I am washing my hands, in the patient's presence, I will ask this question: "When did this pain first come,—at night or in the morning?" The answer will almost decide the cause, if the patient declares it to have come in the morning on awakening; for, if the pain is what is termed neuralgic,—that is, sympathetic with some other portion of the nervous system under pressure,—it will not come on after a night's rest, when the system has been recuperated, and the nervous force has been replenished by sleep. The next question will be, "Does the tooth feel longer than the others?" If an affirmative answer is given, the diagnosis is, for the present, closed. The cartilage, which is placed between the tooth and jaw, to receive the shock of closure of the jaws, is swelled by the flow of blood that is there to bring pabulum and to carry away the retrograded tissues; for pain, I argue, always destroys some portion of the tissues. But, in this case, why is this flow of blood to the periosteum? Simply because there are almost no perfect articulations of the natural teeth, and the patient during the night, in dreaming, from mental cares, indigestion, or other causes,—any intense mental or physical emotion will produce it,—has brought his jaws together with too forcible occlusion on an imperfectly articulated tooth, pounding and inflaming by this means the underlying fleshy tissue. Remember, now, our lesson that the fleshy tissues alone give pain, and that the tooth is now a mechanical irritant, and the cure must be effected in a scientific, mechanical way.

When the periosteum, pericementum, cartilage, or whatever it may please us to call it, is once inflamed by a strain or a blow, after occlusion of the jaws, be it never so slight, it will increase the inflammation, until the cartilage reaches a point where a static condition sets in, and congestion, dental abscess, and fistula are the natural sequences, unless the cause be removed before it reaches this stage. If any one desires to try the effect of mental and physical exertion on the closure of the jaws, let him try to lift a very heavy weight or get tremendously angry with his mouth open, if he can. The jaws automatically close with great firmness under such circumstances.

As a practical suggestion, when your patient says the aching tooth feels longer than the others, it is so. It is not the effect of imagination. It is a plain matter of fact. It may have had a mal-occlusion for a long while, and the exalted sensibility occasioned by irritation has just revealed it. The only way to cure it is to shorten this bone,—this inert matter, looking at it from the mechanical side,—and thus rid the periosteum of its irritant. Half measures will not do. The articulation must be reduced to nothing; in other

words, so that when the jaws are occluded the patient is not aware of any strike against the inflamed tooth. The relief is immediate. Expressions of gratitude will come from innumerable patients. Not the least of such was one to me from a lady who declared I "ought to be sainted."

There are occasionally times when the tooth is too lame to have this operation performed. Rest for the tooth—meaning always the periosteum—is required, and must be accomplished by other means; that is, the tooth must be relieved from all pressure, in order that the engorged tissues shall have time and not be disturbed while relieving themselves of their surplus fluids. In such cases a cap of gutta-percha, placed on the neighboring teeth to prevent closure of the jaws, is suggested. Sometimes a bit of wood or a toothpick to hold between the teeth affords gratification to a business man who is often obliged to talk.

Time forbids too much detail, but this rule we should bear in mind: When grinding off projections or cusps, cut them always towards horizontal planes, to allow for the lateral movement of the under jaw, or a failure will be made; for when the jaws are in repose the mal-articulation may not be felt; but on making a lateral movement it may be severely felt. Do not think that this easily-described operation is easy to perform. It is, on the contrary, at times quite difficult. It demands a great deal of study and often much time to rightly perform the operation, and you will with great care quite often mistake the points of occlusion; and you will be much surprised at the surplus material you will have to remove from the antagonizing teeth.

What ought to be done when the tooth is ulcerated? If the same cause exists,—and it almost universally does,—proceed with the same remedies. A thorough ulceration cuts off all the vitality of the pulp; but I am satisfied that the death of the pulp is occasioned by the periosteal cartilage being so engorged with circulating fluids that it presses upon the minute vessels that pass through the foramina to the interior of the tooth, thereby cutting off the circulation and producing stasis in the pulp, as a string would if tied tightly around my finger. That is, I consider this condition the most common,—more so than that the inflammation is first conveyed from the pulp to the periosteum. Empty the tooth of dead tissue and vicious fluids; put a lance to the exterior swelling, if necessary, and give the tooth rest from all pressure. When the tooth shows that it has recovered from its shock by its restoration to normal feeling, refill without pounding on it, unless you wish a return of the trouble. Should there be a tendency to a return of inflamed conditions, have the patient return at once, so that your

work may be reviewed, and most likely you will find that your filling shows a bright spot on it, indicating that there is an uneven occlusion with its antagonist, or that the articulation has changed. If so, grind off the bearing spot or its antagonist the thickness of a sheet of paper, or until the patient says "it does not hit now for sure!" The patient knows every time when it does *not* strike, but cannot always tell you when it does strike; and if he cannot tell you that it "*does not strike at all*," you may conclude it still strikes.

"The pericementitis resulting from long and severe malleting upon a pulpless tooth may be relieved with a preparation of aconite and iodine," says a learned professor. To my mind, a dentist who thus pounds a pulpless tooth should be relieved of his diploma. It is generally admitted that a permanent change takes place in the periosteum after severe inflammation. Something like weakness remains, often for a very long time. If a permanent thickening takes place, a permanent loss of tooth-substance, when the articulation is close, is founded on a scientific basis.

When we have accomplished this great fact; when we have at our fingers' ends the means of giving relief from pain so annoying, so aggravating as the continuous grinding of an inflamed and ulcerating tooth; when we can to a very large extent relieve this suffering without extracting; when we can check and scatter the inflaming forces, and make the angry tooth become again quiet, and remain so, and can make the name of ulcerated tooth not a hissing and a scorn, but something within the bounds of reasonable cure, we can claim that we have gained a portion of the "high science" of dentistry which will surely elevate us above mere tooth-fillers and tooth-pullers. Is it immodest in me to claim that I have had a great measure of success in the class of cases described? I think not; for I offer to all the theory or principle by which I have accomplished these results, and ask only in return, and for the benefit of those who suffer, a thorough study and application of the principles embraced in this paper, knowing that by so doing you and your patients will receive a satisfaction far beyond your present estimation.

